

CLAIMS

1. A system for locating mobile telephones adapted to communicate with a first radio terminal of a network of radio terminals supervised by an operational control centre, the mobile telephone including means for estimating at least one parameter representative of the position relative to a terminal, and means for transmitting information relating to said parameter to a server via the first radio terminal, and the server including means for comparing the information relating to said parameter to a predefined map of said parameter and deducing therefrom an estimate of the location of the mobile telephone, characterized in that, information being transmitted between a mobile telephone and a radio terminal on a service logical channel and on a traffic logical channel, the information relating to said parameter is transmitted to the first radio terminal on the traffic logical channel.

2. A system according to claim 1, characterized in that it includes means for estimating the distance between a mobile station and the first radio terminal with a margin of error Δd_{bm} as a function of the time taken by a wave to cover said distance.

3. A system according to ^{claim 1} ~~either preceding claim,~~ characterized in that it includes means for estimating the levels of reception from the first radio terminal and adjoining radio terminals.

4. A system according to ^{claim 1} ~~any preceding claim,~~ characterized in that the mobile station includes means for comparing the times r_i of reception by the mobile station of transmissions from other radio terminals at times r of reception of transmissions from the first radio terminal and deducing therefrom the value Δr_i of the receive time shift and means for transmitting the value of each time shift Δr_i to the server via the first radio terminal and the server advantageously includes means for estimating the

distance between the mobile telephone and each of the other radio terminals as a function of the time shift Δt_i and the time shift Δe_i between the transmission times e_i of the other radio terminals and the transmission times e of the first radio terminal.

5 5. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that it includes means for specifying the location of the mobile telephone by cross-checking the estimated locations obtained using at least two parameters.

10 6. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that location can be effected at the command of the mobile station user.

15 7. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that the server can include means for transmitting information to the user as a function of the location of the mobile telephone.

20 8. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that the map can be adapted to the transmit power levels of the various radio terminals by linear interpolation.

25 9. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that the map can be recomputed as a function of changes in parameters likely to modify the values relayed to the geographical information server, for example as a function of activation or non-activation of frequency hopping on the various radio frequencies.

30 10. A system according to ^{claim 1} ~~any preceding claim~~, characterized in that the mobile station includes means for comparing location data with a previously stored area, for specific charging, the location data being stored in a SIM card of the mobile station.

35 11. A system according to claim 10, characterized in that the mobile station can include means for transmitting charging data by means of the short message service.

12. A system according to claim 11, characterized in that the mobile station transmits charging data if a call is made or received in the vicinity of the previously stored area if the mobile station enters or leaves said previously stored area during a call.

13. A system according to ^{claim 10} ~~any of claims 10 to 12~~, characterized in that the mobile station includes means for transmitting a "transfer to fixed network" message if said mobile station is in the previously stored area, causing modification of call routing so that any incoming call is notified to the fixed station or stations and to the mobile station.

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